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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,568	10/12/2004	Henrik Glent-Madsen	GRP-0085	4555
23413	7590	01/12/2006	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			THOMPSON, TIMOTHY J	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/511,568

Applicant(s)

GLENT-MADSEN, HENRIK

Examiner

Timothy J. Thompson

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3-28,30-32 and 35 is/are rejected.
- 7) ☒ Claim(s) 2,29,33 and 34 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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Patent Claims

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-10, 11-13, 16-22, 24-26, 28, 30-32, 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Moulin(U.S. Pat. No. 6,963,452).

Regarding claim 1, 32 Moulin discloses at least one exposure head(fig 9, G, G') and at least two light modulating arrangements(fig 2C, 15 and fig 9), each of said two light modulating arrangements having a spatial light modulator(col 5, lines 27-40) and an associated light emitter(fig 2A, 10) arranged for illumination of an illumination surface via said spatial light modulator, each of said two light modulating arrangements being digitally controlled(col 5, lines 32-38), said apparatus having means for performing a relative movement between said at least one exposure head and the illumination surface in at least one direction(fig 11).

Regarding claim 3, Moulin discloses wherein said relative movement is a scanning movement(fig 8).

Regarding claim 4, Moulin discloses wherein said relative movement is established by moving the at least one exposure head relative to said illumination surface(fig 11).

Regarding claim 5, Moulin discloses wherein said relative movement is established by moving said illumination surface relative to the at least one exposure head(fig 8).

Regarding claim 6, Moulin discloses wherein at least one exposure head(fig 9, G) having two light modulating arrangements(fig 2, 10).

Regarding claim 7, Moulin discloses wherein said light modulating arrangements are arranged on at least two different exposure heads and where said exposure heads perform scanning movements over the illumination surface.

Regarding claim 8, Moulin discloses wherein said spatial light modulators being arranged so as to illuminate at least two substantially separate sub-areas of said illumination surface(fig 8, band 1, band 3).

Regarding claim 9, Moulin discloses wherein said spatial light modulator arrangements being aligned so that the rows of both light modulators are parallelly oriented(fig 8).

Regarding claim 10, Moulin discloses wherein said spatial light modulating arrangements being aligned so that the neighbors rows of the at least two spatial light modulators are positioned substantially so that the distance between the at least two neighboring rows of spatial light modulators is substantially the same as the distance between the rows of the individual light modulators(fig 7).

Regarding claims 11, 12, 13 and 30, Moulin does not specifically disclose, the distance between the two spatial light modulators, the distance between the centers of the two spatial light modulators, or the distance between a y projection of the centers of

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the two spatial light modulators. It would have been obvious to one having ordinary skill in the art at the time of the invention to the distance between the two spatial light modulators, the distance between the centers of the two spatial light modulators, or the distance between a y projection of the centers of the two spatial light modulators, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 16, Moulin discloses wherein said substantially separate sub-areas having neighboring surfaces of said illumination surface(fig 8).

Regarding claim 17, Moulin discloses wherein said at least one direction being substantially transverse to a relative movement of said illumination surface(fig 8)

Regarding claim 18, Moulin discloses at least one direction establishing that an illuminated pixel on said illumination surface is illuminated by means of a least two light modulators of the spatial light modulator(fig 8).

Regarding claim 19, Moulin discloses at least one direction establishing that an illuminated pixel on said illumination surface is illuminated by means of at least one modulator row of said spatial lilt modulator(fig 8).

Regarding claim 20, Moulin discloses wherein said exposure head being movable in at least two directions with respect to the illumination surface(fig 8, x; fig 11, z).

Regarding claim 21, Moulin discloses a light source(fig 2a, 10).

Regarding claim 22, Moulin discloses at least on light emitting end of a optical guide coupled to a light source(fig 2a, 10, 20, 30).

Regarding claim 24, Moulin discloses an LED matrix(fig 2, 10).

Regarding claim 25, Moulin discloses a DMD chip(col 5, lines 35-37).

Regarding claim 26, Moulin discloses a micro-mechanical transmissive light modulator(col 5, lines 40-45).

Regarding claim 28, Moulin discloses the illumination surface having a light sensitive material(col 1, lines 19-30).

Regarding claim 31, Moulin discloses wherein the x-direction between centers of the spatial light modulating arrangement is substantially 0 (fig 9)

Regarding claim 35, Moulin discloses the illumination is performed by means of a light illumination apparatus(abstract).

Claim Rejections - 35 USC § 103

Claims 14, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moulin(U.S. Pat. No. 6,963,452) as applied to claim 1, above, and further in view of Rupp(U.S. Pat. No. 6,198,579)

Regarding claims 14 and 15 Moulin does not disclose individual cooling means for each objective lens, However, Rupp discloses mounting the objective lenses with an cooling means(claim 2) so as to correct for aberration in the lens(abstract). It would have been obvious to one skilled in the art, at the time of the invention, to mount the lenses so as to be cooled when desired as shown by Rupp, in the optical device of

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Moulin, since as shown by Rupp, objective lens are commonly have a cooling means so as to prevent aberration in the lens system.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moulin(U.S. Pat. No. 6,963,452) as applied to claim 1, above, and further in view of Mizutani et al. (U.S. Pat. No. 6,566,022)

Regarding claim 23 Moulin does not disclose a lamp. However, Mizutani et al. discloses using a lamp in an exposure device(fig 3, 1). It would have been obvious to one skilled in the art, at the time of the invention, to use a lamp as shown by Mizutani et al., in the optical device of Moulin, since as shown by Mizutani et al. lamps are commonly used in exposure apparatuses for illuminating the wafer..

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moulin(U.S. Pat. No. 6,963,452) as applied to claim 1, above, and further in view of McLean et al. (U.S. Pat. No. 6,976,426)

Regarding claim 27 Moulin does not disclose a printing plate. However, McLean et al. discloses using a printing plate in an exposure device(col 2, lines 45-50). It would have been obvious to one skilled in the art, at the time of the invention, to use a printing plate shown by McLean et al., in the optical device of Moulin, since as shown by McLean et al., printing plate are commonly used in exposure apparatuses for capturing images.

Allowable Subject Matter

Claims 2, 29, 33, 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. With the allowable features being; a single exposure head; the exposure head is adapted for scanning in two transverse opposite directions; the at least two light modulating arrangements are arranged on different free running exposure heads.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Thompson whose telephone number is (571) 272-2342. If the examiner can not be reached his supervisor, Ricky Mack, can be reached on (571) 272-2333.

A handwritten signature in black ink, appearing to read "Timothy Thompson". The signature is fluid and cursive, with the first name "Timothy" and last name "Thompson" clearly distinguishable.

**TIMOTHY THOMPSON
PRIMARY EXAMINER**